Notice of Allowability	Application No.	Applicant(s)	
	09/504,330	LEAMON, PAUL H.	
	Examiner	Art Unit	
	Yogesh C Garg	3625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *8/9/2004 & Interview summary on 11/24/04*.

2. ☒ The allowed claim(s) is/are *1-7, 12-13, 15-17, 19-22, 24 and 26-28*.

3. ☒ The drawings filed on *14 February 2000* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 11/24/04.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Yogesh C Garg
Primary Examiner
Art Unit: 3625

DETAILED ACTION

Response to Amendment

1. Amendment B, paper#7, received on 06/15/2003 is acknowledged and entered. Claims 16-22, 24-28, 30 and 31 have been cancelled. Claims 28, 32, 54, 81 and 82 have been amended. New claims 82 and 83 have been added.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Attorney David H. Judson on 11/4/2004The application has been amended as follows:

The application has been amended as follows:

2.1. Claims 14, 23 and 30-31 are cancelled.

2.2. Claims 1, 3, 5, 7, 13, 17, 19-22, 24, 26 and 28 are amended as follows:

1. (currently amended) A method of allocating and scheduling requirements for agents in a multiple location, skills-based contact center environment organized into a hierarchy of one or more [business units] aggregated contact types at a first level, [two

or more] multiple contact types at a second level, and two or more management units at a third level, comprising the steps of:

(a) creating a set of contact allocations that define how forecasted contacts are [hierarchically distributed] allocated from [a given business unit] each of the one or more aggregated contact types at the first level to the multiple contact types at the second level, with each contact type of the multiple contact types at the second level being defined by one or more queues all located at a geographically distinct location, there being at least two or more geographically distinct locations in the multiple location skills-based contact center environment, wherein the step of creating a set of contact allocations allocates the forecasted contacts using agent availability data per each of the contact [type] types of a given aggregated contact type and each time interval to be allocated, and wherein agent availability data is predicted by schedule simulation of agents working their schedules and handling contacts in [a] the skills-based contact center environment;

(b) creating a set of agent requirement allocations that define how agent requirements are [hierarchically distributed] allocated from [two or more] the multiple contact types to two or more management units, each management unit defining a collection of agents at least some of whom have multiple skills wherein the step of creating a set of agent requirement allocations allocates the forecasted agent requirements using agent availability data per each of the contact [type] types of a given aggregated contact type and each time interval to be allocated, wherein the agent

availability data is predicted by schedule simulation of agents working their schedules and handling contacts in [a] the skills-based contact center environment;

(c) allocating forecasted contacts and forecasted agent requirements based on the created contact and agent requirement allocations;

(d) using the allocated forecasted agent requirements to generate a schedule for each of the plurality of scheduled agents; and

(e) repeating steps (a) - (d) until an output of a set of contact allocations and a set of agent requirement allocations occurs;

wherein at least the schedule simulation and at least one of steps (c)-(e) are performed at least in part through one or more processing devices.

3. (currently amended) The method as described in Claim 2 wherein the created agent requirement allocations are minimum agent requirement allocations.

5. (currently amended) The method as described in Claim 4 wherein the created agent requirement allocations are maximum agent requirement allocations.

7. (currently amended) The method as described in Claim 6 wherein the created agent requirement allocations are minimum and maximum agent requirement allocations.

13. (currently amended) The method as described in Claim 1 wherein a management unit is [a collection of agents] located at a given contact center location in the multiple location, skills-based contact center environment.

14. (currently cancelled).

17. (currently amended) A method of allocating and scheduling in a multi-location, skills-based call center environment, comprising the steps of

organizing the call center environment into a hierarchy of one or more [business units] aggregated call types at a first level, [two or more call contact] multiple call types at a second level, and a set of two or more management units at a third level;

(a) having a user create a set of given call allocations that define how calls are [distributed from a given business unit] allocated from each of the one or more aggregated call types at the first level to the multiple call types at the second level, with each call type of the multiple call types at the second level being defined by one or more queues all located at a geographically distinct location, there being at least two or more geographically distinct locations in the multiple location, skills-based call center environment;

(b) having the user create a set of given agent requirement allocations that define how agent requirements are [distributed] allocated from [a] the multiple call [type] types to two or more management units, each management unit defining a collection of a eats at least some of whom have multiple skills;

(c) predicting agent availability by call type using a schedule [simulator] simulation to generate agent availability data, wherein the simulation data corresponds to agents working their schedules and handling contacts in [a] the multi-location, skills-based contact center environment;

(d) allocating forecasted calls and forecasted agent requirements based on the given call and requirement allocations and the agent availability data;

(e) using the allocated forecasted agent requirements to generate a schedule for each of the plurality of scheduled agents; and

(f) repeating the steps (a) -(e) until an output of a set of [contact] call allocations and a set of requirement allocations occurs;

wherein at least the schedule simulation and at least one of steps (c)-(e) are performed at least in part using one or more processing devices.

19. (currently amended) The method as described in Claim 17 wherein the given call allocations and the given agent requirement allocations are minimum values.

20. (currently amended) The method as described in Claim 17 wherein the given call allocations and the given agent requirement allocations are maximum values.

21. (currently amended) The method as described in Claim 17 wherein the given call allocations and the given agent requirement allocations are minimum and maximum values.

22. (currently amended) An allocation method operative in a multi-location, skills-based [call] contact center environment, comprising [the steps of]:

(a) organizing the [call] contact center environment into a hierarchy of one or more [business units] aggregated contact types at a first level, [two or more call] multiple contact types at a second level, and a set of two or more management units at a third level;

(b) allocating a percentage of incoming [calls] contacts from [a given business unit] each of the one or more aggregated contact types, at the first level to [two or more call] the multiple contact types at the second level, with each contact type of the multiple contact types at the second level being defined by one or more queues all located at a geographically distinct location, there being at least two or more geographically distinct locations in the multiple location, skills-based contact center environment;

(c) allocating agent requirements for a given [call] contact type to one or more management units by predicting agent availability data using a schedule simulation of agents working their schedules and handling contacts in [a] the multi-location, skills-based contact center environment, each management unit defining a collection of agents at least some of whom have multiple skills;

(d) using the allocated forecasted agent requirements to generate a schedule for each of the plurality of scheduled agents; and

(e) repeating steps (b)-(d) until an output of a set of contact allocations and a set of requirement allocations occurs;

wherein at least the schedule simulation and at least one of steps (c)-(d) are performed at least in part using one or more processing devices.

23. (currently cancelled)

24. (currently amended) The method as described in Claim 22 wherein a given [call] contact type is associated with a given automatic call distributor (ACD).

26. (currently amended) An allocation method operative in a multi-location, skills-based contact center environment, comprising [the steps of]

(a) organizing the contact center environment into a hierarchy of one or more [business units] aggregated contact types at a first level, [two or more] multiple contact types at a second level, and a set of two or more management units at a third level;

(b) allocating a percentage of contacts from [a given business unit] each of the one or more aggregated contact types at the first level to [two or more] the multiple contact types at the second level, with each contact type of the multiple contact types at the second level being defined by one or more queues all located at a geo graphically distinct location, there being at least two or more geographically distinct locations in the multiple location skills-based contact center environment;

(c) allocating agent requirements for the [two or more] multiple contact types to two or more management units by predicting agent availability data using a schedule

simulation of agents working their schedules and handling contacts in [a] the multi-location skills-based contact center environment;

(d) using the allocated forecasted agent requirements to generate a schedule for each o f the plurality of scheduled agents;

(e) repeating steps (b)-(d) until an output of a set of contact allocations and a set of requirement allocations occurs;

wherein at least the schedule simulation and at least one of steps (c)-(d) are performed at least in part using one or more processing devices.

28. (currently amended) The method as described in Claim 26 wherein a given contact type is associated with a [given automatic work] contact distributor.

30 (currently cancelled)

31. (currently cancelled).

3. By virtue of the above Examiner's Amendment claims 1-7, 12-13, 15-17, 19-22, 24, and 26-28 are pending for examination and are allowed.

Reasons for Allowance

4. The following is an examiner's statement of reasons for allowance:

Claims 1, 17, 22 & 26

The prior art of record neither anticipates nor fairly and reasonably teach a method for allocating multiple contact types (which as defined in the specification on page 7, lines 2-6 is one of the telephone calls, voice mails, emails, faxes, mail, web callback requests, web chats, web voice calls, outbound calls) in a multi-location, skill-based contact center environment to two or more management units, comprising the following steps, *inter alia*, the steps of: (a) organizing the contact center environment into a hierarchy of one or more aggregated contact types at a first level, multiple contact types at a second level, and a set of two or more management units at a third level; (b) allocating a percentage of contacts from each of the one or more aggregated contact types at the first level to the multiple contact types at the second level, with each contact type of the multiple contact types at the second level being defined by one or more queues all located at a geographically distinct location, there being at least two or more geographically distinct locations in the multiple location skills-based contact center environment; (c) allocating agent requirements for the multiple contact types to two or more management units by predicting agent availability data using a schedule simulation of agents working their schedules and handling contacts in the multi-location skills-based contact center environment; (d) using the allocated forecasted agent requirements to generate a schedule for each o f the plurality of scheduled agents; and (e) repeating steps (b)-(d) until an output of a set of contact allocations and a set of requirement allocations occurs; wherein at least the schedule simulation and at least

one of steps (c)-(d) are performed at least in part using one or more processing devices (see claims 1,17, 22 & 26).

Applicant's remarks in the "Response to Office Action " received on August 09, 2004 and in a fax message received during the Interview Summary on 11/19/2004 are compelling and commensurate with both the original disclosure and the claims as amended. Particularly, see Applicant's remarks in the "Response to Office Action " received on August 09, 2004 (page 7, lines 4-9):

> " The present invention addresses these deficiencies in a certain way, and in a specific center environment-one that is organized into a hierarchy of one or more business units at first level, one or more contact types at a second level, and one or more management units at a third level (see claim 1, 17, 22 and 26). These " environment-specific elements are affirmative limitations that are neither disclosed nor suggested by the prior art of record "

The Applicant further remarks in a fax message received during the Interview Summary on 11/19/2004 (see pages 1-3):

> " In the first instance, Klenke is concerned with a completely different problem as compared to that addressed and solved by the present invention. Klenke teaches one of ordinary skill as to how to set up an automatic call distributor (ACD) to enable that ACD to provide or facilitate so-called skills-based call routing. She teaches that one should inventory agent skills and then build a matrix (e.g., Table 2) that links agent skills to caller needs. With this agent skills matrix, the "last step is to set up a routing scheme that allows the caller and agent to come together efficiently." The result of this process is an ACD (or a set of ACD queues) that have been set up to handle incoming calls into that ACD and no other ACD.
>
> In contrast, the present invention assumes that there are multiple workforce sites (e.g., in Figure 1, Dallas and Boston), and that incoming calls (or more generally, contacts) are being shared among those sites. Some routing mechanism exists to distribute the calls among the sites and the problem addressed by the present invention is how to best schedule multi-skilled agents to each such site when the allocation is unknown. This is not the same problem addressed by Klenke. Indeed, the present invention assumes that the ACD at each individual site has already been set up to receive calls, and this ACD "set up" may or may not (it does not matter in the context of the present invention) be based on the Klenke approach.

> Stated another way, Klenke is concerned with how to set up a given ACD (within a single site) to provide skills-based routing, whereas the present invention is concerned with how to schedule multi-skilled agents that are expected to work in multiple sites, each of which has its own ACD or set of ACD queues. Call routing and agent scheduling are two separate and distinct problems in this art.
>
> .....Thus, the "hierarchy" can be described in a shorthand form as: BU (first level) -~ contact type (second level), where contact types are expected to be present at multiple contact center sites (how the contacts get routed there is not the invention) --• two or more multi-agent MUs within a given contact center site.
>
> The present invention schedules multi-skill agents within this operating environment. Skills-based ACD routing - the Klenke subject matter - is something else entirely.
>
> Stated another way, neither Klenke nor any other reference (e.g., Crockett `292 or `355) disclose or suggest any such subject matter. Thus, they cannot (and do not) teach the claimed subject matter that specifies this "hierarchy" and how it is used in the inventive method, - e.g. (in claim 1): "creating a set of contact allocations that define how contacts are hierarchically distributed from a given business unit to multiple contact types..." and "creating a set of requirement allocations that define how agent requirements are hierarchically distributed from two or more contact types to two or more management units..."
>
> The Office bears the burden of establishing a prima facie case of obviousness of the subject matter "as a whole." Nothing in the record meets this standard. ".

The Examiner notes that the specification beginning at page 4, line 1-page 12, line 5, Figures 1 and 2 and the amended claims 1, 17, 22 and 26 are consistent with the examiner's remarks as noted above in emphasizing that the patentability of his invention lies in creating a set of contact allocations that define how contacts are hierarchically organized and distributed from a given business unit to multiple contact types at the second level and creating a set of requirement allocations that define how agent requirements are hierarchically distributed from two or more contact types to two or more management units by predicting agent availability using a schedule simulation process, which is performed using a processing device. The multiple contact types are defined by one or more queues all located at a geographically distinct location, there being at least two or more geographically distinct locations.

Claims 2-7, 12-13, 15-16, 19-21, 24, and 27-28.

Since claims 2-7, 12-13, 15-16, 19-21, 24, and 27-28 are dependencies of claims 1, 17, 22 and 26 the reasons for allowance for all the dependent claims is same as for claims 1, 17, 22 and 26 given above.

5. Discussion of most relevant prior art:

The following references have been identified as most relevant prior art to the claimed invention(s).

(i) The most closely applicable prior art of record is the article referred to in the previous non-Final office action as " Klenke" (Maggie Klenke, " ACDs Get Skills-Based Routing", Business Communications Review/July 1995). Klenke discloses determining the requirements of callers and based upon this requirement of callers to set up skills-based routing process at an ACD to defined skill groups. However, Klenke fails to anticipate or render obvious the application's above-mentioned unique features(s), i.e. creating a set of contact allocations that define how contacts are hierarchically organized and distributed from a given business unit to multiple contact types at the second level and creating a set of requirement allocations that define how agent requirements are hierarchically distributed from two or more contact types to two or more management units by predicting agent availability using a schedule simulation

process, which is performed using a processing device. The multiple contact types are defined by one or more queues all located at a geographically distinct location, there being at least two or more geographically distinct locations.

(ii) **US** Patent 5,325,292 to Crockett cited in the previous Office action discloses a method for planning, scheduling and managing agents in a call center environment. However, patent ' 292 fails to anticipate or render obvious the application's above-mentioned unique features(s), i.e. creating a set of contact allocations that define how contacts are hierarchically organized and distributed from a given business unit to multiple contact types at the second level and creating a set of requirement allocations that define how agent requirements are hierarchically distributed from two or more contact types to two or more management units by predicting agent availability using a schedule simulation process, which is performed using a processing device. The multiple contact types are defined by one or more queues all located at a geographically distinct location, there being at least two or more geographically distinct locations.

(iii) **US** Patent 6,044,355 to Crockett et al. referred to by the applicant in the "Response to Office Action " received on August 09, 2004 and in a fax message received during the Interview Summary on 11/19/2004 discloses a method for scheduling personnel in a skill based call center work environment by employing a feedback mechanism using simulation. However, patent ' 355 fails to anticipate or render obvious the application's above-mentioned unique features(s), i.e. creating a set

of contact allocations that define how contacts are hierarchically organized and distributed from a given business unit to multiple contact types at the second level and creating a set of requirement allocations that define how agent requirements are hierarchically distributed from two or more contact types to two or more management units by predicting agent availability using a schedule simulation process, which is performed using a processing device. The multiple contact types are defined by one or more queues all located at a geographically distinct location, there being at least two or more geographically distinct locations.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(i) US Patent 6,088,678 to Shannon discloses a computer-implemented process simulation method to calculate resources required to complete a project (see at least abstract). However, patent ' 678 fails to anticipate or render obvious the application's above-mentioned unique features(s), i.e. creating a set of contact allocations that define how contacts are hierarchically organized and distributed from a given business unit to multiple contact types at the second level and creating a set of requirement allocations that define how agent requirements are hierarchically distributed from two or more contact types to two or more management units by predicting agent availability using a schedule simulation process, which is performed using a processing device. The multiple contact types are defined by one or more queues all located at a geographically distinct location, there being at least two or more geographically distinct locations.

(ii) US Patent 6,581,105 to miloslavsky et al. discloses that in an Internet Protocol Network Technology call center routing the emails to agents by matching the requirements of the calls with the skills of the agents (see at least abstract). However, patent ' 105 fails to anticipate or render obvious the application's above-mentioned unique features(s), i.e. creating a set of contact allocations that define how contacts are hierarchically organized and distributed from a given business unit to multiple contact types at the second level and creating a set of requirement allocations that define how agent requirements are hierarchically distributed from two or more contact types to two or more management units by predicting agent availability using a schedule simulation process, which is performed using a processing device. The multiple contact types are defined by one or more queues all located at a geographically distinct location, there being at least two or more geographically distinct locations.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh C Garg whose telephone number is 703-306-0252. The examiner can normally be reached on M-F(8:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wynn Coggins can be reached on 703-308-1344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Yogesh C Garg
Primary Examiner
Art Unit 3625

YCG
November 24, 2004